

## DATA VALIDATION IN THE RBI WORK PROCESS

A typical Risk-Based Inspection (RBI) project can span multiple process units with thousands of pieces of equipment. Every piece of equipment is divided further into components for analysis. Each of these components requires the input of several hundred parameters, totaling thousands of data points that need validation.

### PROBLEM

With such a large number of parameters, there is a possibility of overlooking potentially erroneous data. As a result, the RBI group has developed a set of quality control tools that help the project manager review the following types of data involved in an RBI analysis.

### QUALITY CHECKS

Mechanical Data

Operating Data

Inspection History

Damage Review

PRD

Each of these quality checks validates multiple data points pertaining to its respective category. For example, in the Inspection History check, one test compares furnished wall thickness with field-measured wall thickness in order to identify inspection data that may require further review. As another example, in the Operating Data check, one test compares the design pressure and the operating pressure to ensure that the equipment is not exceeding its design specifications, as shown in the table below.

| EQUIPMENT | COMPONENT | DESIGN PRESS. (PSIG) | OPERATING PRESS. (PSIG) | FLAG         | DESIGN TEMP. (°F) | OPERATING TEMP. (°F) | FLAG         |
|-----------|-----------|----------------------|-------------------------|--------------|-------------------|----------------------|--------------|
| T-101     | T-101-BTM | 285                  | 300                     | Needs Review | 500               | 560                  | Needs Review |
| T-101     | T-101-TOP | 285                  | 280                     |              | 500               | 480                  |              |
| D-111     | D-111     | 170                  | 110                     |              | 400               | 520                  | Needs Review |
| D-222     | D-222     | 50                   | 60                      | Needs Review | 100               | 79                   |              |

### BENEFITS TO THE CLIENT

These quality checks allow the project manager to identify and resolve any potential discrepancies in the data to create a more accurate inspection plan for the client. The data validation also identifies problem areas outside RBI that may need further evaluation. In the case of D-111, shown in the table, the end user may consider mitigation techniques

such as an operational change or a rerate of the vessel. Data Validation is an integral component of E<sup>2</sup>G's RBI work process and helps maintain the accuracy and integrity of our client's data, which is critical to a highly effective RBI program.